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Jewell

Poisoning from opium.

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Kennedy

Nitrous acid a substitute for blisters.

Killett.

Nitrous acid as a substitute for blisters.

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R. Martle

Tænia cured by oleum Terebinthinæ.

30440/P
JEWEL

Case.—A married woman, aged twenty-eight, swallowed, in a fit of despondency, a quantity of Laudanum, amounting, as it was alleged, to about two fluid ounces. This was about nine o'clock in the evening; and at about half past ten o'clock she was found in a state of insensibility by the reporter, who appears to have been the first medical man called upon to attend her.

By him a dose of *ipecacuanha* and *tartarised antimony* was immediately exhibited, which was followed in a little time by a strong solution of the *sulphate of zinc*, and large supplies of an infusion of *mustard*. By these means, together with constant irritation of the fauces with a feather, copious vomiting was, it appears, soon excited; after which the patient felt so far relieved as to be able to answer questions.

It not appearing, however, to the medical gentlemen present (for there were now two of them in attendance,) that the whole of the poison could well be dislodged by emetics simply, a third practitioner was summoned to their assistance, who speedily arrived, bringing with him Mr. Weiss, of the Strand, and a new *stomach-pump* of his invention. By means of this instrument the remaining contents of the stomach were, we are told, quickly evacuated; and that organ washed out with tepid water, until the fluid discharged no longer exhibited any traces of the laudanum.

The *cold affusion* was now determined on, and, as it would appear, 'liberally employed,' by pouring water from a jug over the head and neck of the patient,—and the first effects of this proceeding seem to have afforded great satisfaction; for the poor woman, we are told, '*raised herself up*, and, in a feeble voice, requested time to breathe.' But this 'reaction,' as it is called, was only of short duration; for the unfortunate patient sunk quickly again into that comatose state from which she had thus been recalled.

It was now deemed necessary to throw stimulants of various kinds into the stomach, and to administer others by the rectum;—the volatile alkali also was introduced into the nostrils, and frictions were 'incessantly employed' on the surface of the body. In fine, 'all the means usually adopted on similar occasions' were called into activity by the sedulous attendants: but in vain; for, notwithstanding 'the most indefatigable exertions' on their parts, the breathing soon became more difficult and stertorous; the whole frame sunk into a state of collapse; and, after one or two convulsive struggles, the woman expired at five o'clock in the morning, eight hours after having swallowed the fatal draught.

*Examination of the body.*—The body was examined thirty-three hours after death. In the *abdomen* no morbid appearance whatsoever, it is stated, was to be found; nor in the *thorax* was any thing observed worthy of notice, except the state of the heart, which was pale, bloodless, and flaccid.

In the *head*, however, matters were different; for, on removing the skull-cap, it was observed, 'that the vessels of the dura mater looked turgid,—those of the arachnoid membrane and pia mater still more so; and, upon examination of the cerebrum, the whole of the vascular system of the brain appeared enormously tumid, and every vessel seemed gorged with blood.' Some extravasated blood also

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is stated to have been observed, particularly one portion or coagulum, 'upwards of an inch in extent,' which was found 'lying at the superior margin of the right lateral ventricle.'

*Observations.*—The preceding details are extracted from a communication, by Mr. JEWEL, of Gerrard Street, inserted in the London Med. Journal for February (p. 109). From the original article it appears that the patient had been confined in child-birth only fourteen days before the attempt made upon her life; that she had been previously subjected to a severe course of mercury, for some *supposed* syphilitic complaints; and that her mind had been for some time (perhaps months) in a state of extreme dejection and distress, in consequence of the alleged nature and apparent obstinacy of these complaints.

Under these circumstances, it is but reasonable to presume, that she was, at the time of the transaction above alluded to, but ill qualified, either in mind or in body, to bear up against infliction of any kind; or to endure with impunity, and still less with advantage, the continued application of powerful agents, whose chief operation consists in calling into *activity*, and therefore, to a certain degree, in *exhausting*, the remaining powers of life.

## IX.

*Observations on the Use of Nitrous Acid as a substitute for Blisters.* Communicated by Dr KENNEDY, F. R. S. E. and Fellow of the Royal College of Physicians, Edinburgh.

*Extract of a Report from Mr Assistant Surgeon* KILLETT, *of the 3d Regiment Light Cavalry, to the Medical Board, Madras, dated Mhow, 4th November* 1818.

IN my report to the Board for the month of July last, I gave an account of the spasmodic cholera, as it came under my observation, during the short period it was prevalent at this place.

In that report, I recommended bleeding and blistering as the remedies chiefly to be relied on, considering the disease to be a spasmodic affection of the stomach and bowels, accompanied with inflammation, and quickly followed by a diminution of the powers of the brain; and I hinted that the actual cautery might be employed with advantage, as producing a more instantaneous counter-irritation, than the slow acting emplastrum lyttæ. Since writing the above mentioned report, I have been informed by Mr Assistant Surgeon Powell of the Bombay Detachment, now in camp, that he has used the nitric acid to produce a quick counter-irritation, and with the best success. Of forty-one cases which Mr Powell treated in this way, six only died; and of nine

cases treated by an officer commanding a detachment, without medical aid, one only died, and this a woman six or eight months gone with child. The great good effects of this sudden and powerful counter-irritation were strikingly illustrated in the case of a European, who received immediate relief to the burning sensation at the stomach on the acid blister being applied; and who, the next morning, being annoyed with spasms of the extremities, requested the same remedy might be applied; it was accordingly done, and so great was the relief obtained to one leg, that he cried for God's sake to apply it to the other, similarly affected.

Another striking instance was that of a Lascar, seized while cutting wood a koss from camp, and who, on being brought in, was supposed to be past recovery, his stools passing away involuntarily, pulse imperceptible, and extremities cold; the acid blister was applied to the stomach, and the patient got well.

Mr Powell uses two parts of acid to one part of water, and with this mixture rubs the surface over the part affected, to such an extent as may be thought necessary; as soon as the patient complains of pain, he neutralizes the acid, by washing the surface with a solution of salt of tartar; the cuticle can now be easily detached, and leaves the cutis raw, upon which he applies a common blister to keep up the irritation. He employs, besides, small doses of camphor and opium, frequently repeated, to allay the irritation at the stomach; this, with emollient enemata, forms his whole method of cure. I will conclude with saying, that the (forty-one) patients treated with the acid blister were all admitted in such a state, that no blood was attempted to be drawn.

*Letter to* S. Heward, *Esq. Superintending Surgeon, Presidency, from* William Scott, *Surgeon, Madras.*

In a letter to the Superintending Surgeon, dated 8th April last, I noticed some of the effects of the nitrous acid, used as a substitute for cantharides blister in cases of cholera.

I have now the honour to enclose some remarks on the more extended use of that application, which, should you think them worthy of notice, I will be thankful to you to forward to the Medical Board. With this remedy in our hospitals, it should no longer in urgent cases be observed in the journals, that the "blister did not succeed," or, "the blister was applied, bu could not be kept in its place," for no circumstance can preven the *application* of the acid, and its *action*, when applied, cannot possibly fail.

*Saint Thomas's Mount, 9th July* 1819.

*Remarks on the Use of Nitric Acid as a substitute for Blisters, by Mr Assistant Surgeon* KILLETT.

WE hear much of the successful application of firing by the native practitioners; and it is common to hear a farrier say of a horse, "blister him, and if don't do, fire him, which never fails." The cautery is an ancient remedy fallen into disuse, but which nevertheless appeared to possess peculiar virtues.

Though, admitting the fact, that firing was more efficacious than cantharides blisters, I had no defined notions in what this superiority lay, but I could not impute it merely to difference in the *degree* of action, for the blisters used with horses seem often more painful than firing.

The substitution of nitric acid for cantharides blisters in cholera has given me opportunities of making some observations on its mode of action, which appear to me elucidatory of the subject.

Seeing the quickness of action of the acid in cases of cholera, and that it could be applied under any circumstances of frenzy or unruly conduct, I have been led to employ it in those cases of severe disorder in the stomach and bowels, consequent on excessive drinking, where the promptitude is of vital importance, and where common blisters are altogether useless and inapplicable; also in cases of acute and sudden pain from other causes, in hepatitis, and so forth; wherever the disease depends on spasm, or nervous irritation, the relief is *wonderfully sudden;* and when it is connected with inflammation, I think it is fully as certain, and more speedy, than after common blisters.

The pain, upon the whole, is represented as sharper than that caused by blisters, though some patients say not; but the chief point is, that it reaches its acme in two minutes; it continues severe for three hours, and in three more altogether ceases. It is in this *quickness of action* that it resembles the actual cautery, and to this therefore I impute the greater efficacy of both, for, it is reasonable to conclude, that the effect will be as the intensity of the cause; we may compare it to the shock produced by the *sudden* affusion of cold water on the surface, which, under a different management, may be altogether avoided.

But the acid possesses other advantages. Whoever has felt the tedious progressive pain of a blister, the wearisomeness and irritation produced, and the agony of motion; the sickness and disgust of the dressing, and the after sickly smell, itchiness, &c.; will be disposed almost to suffer any pain rather than submit to a repetition; it is also obvious, that all these circumstances must have their bad effects on the patient. But the action of the acid

is essentially different; the application is over in a few seconds; the pain, though severe, is at least soon on the *decrease;* is not aggravated by motion, nor by friction; no dressing is required, and the patient is often free from all the trouble of his disorder before the cuticle is abraded.

I have not seen any occasion for the after use of cantharides. If the acid has been diluted with half its bulk of water, and applied lightly with a feather, the cuticle is stained of a straw or sulphur colour; in three days it begins to pucker, with a little serum underneath; a slight red ring surrounds the parts, and the cuticle comes off on the 4th or 5th day, leaving the surface like a common blistered part, with a few deeper streaks, where the cutis vera has been touched. But if the acid has been used undiluted, or has been longer applied, the cuticle becomes of a deep brown; it does not rise or pucker, as the subjacent vessels necessary for throwing it off, appear to be destroyed; the red ring forming on the 3d day becomes deeper and broader, and a portion of the true skin, of the thickness of sheep's leather, begins to separate in six or seven days. The parts are rather tedious in healing, but this, taking it in all its bearings, is no great disadvantage.

As no serous discharge ensues, the acid cannot be substituted for blisters, in cases where *this* discharge is the motive of their application; neither, of course, can it be admissible when a continued rather than intense counter-irritation is thought to be indicated. But in all urgent and acute cases, and especially where the patient is unruly or restless, the acid appears to me to possess advantages sufficient to recommend its general adoption in practice.

*Saint Thomas's Mount, 30th June* 1819.

## *Tænia cured by Ol. Terebinthinæ.* By Robert Hartle, Surgeon to the Forces, Member of the Royal College of Surgeons, London.

Having, in the 43d number of this interesting publication, stated the case of a military officer having been cured of tænia by the ol. terebinthinæ, I considered myself bound to substantiate the certainty and speedy effects of this medicine, in the cure of this troublesome disease.

In no way could I more effectually ground my proof, than by employing the turpentine in every case that came under my

care or superintendency, varying the dose according to the age, strength, and habit of living of the patient. The latter, I certainly believe, requires most pointed observation, as will, I trust, be in a great measure elucidated by the two accompanying cases.

I fear this disease is often overlooked in this climate, and the practitioner led into a belief that it is chronic dysentery. The patients are generally, at least those that I have seen, meagre and emaciated, with a voracious canine appetite, never satisfied with any quantity of food, and wearing all the appearance of having been starved. Griping pains of the belly, particularly in the mornings before breakfast, with one or two watery stools, a grumbling noise of wind in the intestines, succeeded by pain, pains in the stomach, and occasionally passing pieces of the worm. I would recommend to every medical gentleman to desire his patients to observe particularly their stools, by which means he will often find out the true disease, and be relieved from that anxiety which must naturally be excited in the mind of every medical man, when he finds that his remedies have failed to give relief.

I have succeeded in curing two patients with two ounces each of the oil undiluted, yet, as in the case of Cockshot, I would increase the dose was my patient, which is too often the case in this climate, an ardent spirit-drinker, and I should not hesitate to give as far as four ounces. I am fully persuaded that a large dose is less likely to affect the urinary organs, than a small one; a large dose acts immediately as a cathartic, and purges itself off before the absorbents have time to play on it. It will be seen in the case of Howell, the ol. terebinth. was six hours in the stomach, yet no inconvenience was experienced in the urinary organs.

Case I.—William Howell, æt. 36, a private soldier in the Royal West India Rangers, was admitted into hospital on the 23d September 1817, punished. On the night of the 28th September he was suddenly attacked with hæmoptysis. The usual remedies were immediately applied, and, although fast recovering from this disease, he appeared to daily decrease in strength. He became very emaciated, and complained of griping pains of his belly, particularly before breakfast, with some purging, and pain in his stomach. His emaciated state particularly attracted my notice on the morning of the 22d October, when his pulse was regular; skin natural; tongue clean; appetite voracious; and, to make use of his own words, "he was never full." I directed him to examine his stools, and see if he could discover any

worms. He immediately said he was in the habit of passing them very frequently. On the 23d October he shewed me three, which, although flat, were not ribbed like the tape-worm; each was about two inches long. Still, however, the appearance of them led me to believe that this was a case of tænia, and I resolved to try the terebinthina. I desired him to abstain as much as possible from food that day, and on no account take his supper. He complied, and on the morning of the 24th October, I gave him two ounces of the ol. terebinth. undiluted. I visited him very frequently during the morning, and finding at twelve o'clock (six hours after he had taken it) that he had had no stool, I ordered him two ounces of the ol. ricini. In half an hour after he had taken it he passed a narrow tape-worm, nine feet one inch long.

Notwithstanding the length of time between his taking the turpentine and that of having a stool, no ill effects were produced, and the only strange sensation he complained of was that of intoxication. On inquiry into the general character of this man, I find he is given to drink freely ardent spirits, which I think in a great measure accounts for the tardiness of the turpentine's effects. His appetite has since become natural, and his general health daily improving.

*Detachment General Hospital,*
*Antigua, 24th December* 1817.

Case II.—William Cockshot, æt. 28, private soldier in the Royal West India Rangers, admitted into hospital on the 21st September 1817, with slight ulcer. On the morning of the 25th October 1817, he complained of severe griping pains of his belly, with frequent inclination to stool, which generally continued until he had got his breakfast. His countenance was sallow and dejected; appetite good; pulse regular; skin natural; pain in his stomach, and described as if a very weighty substance was in it. He also remarked that he had frequently passed worms very like those of Howell, but much broader, and ribbed. I considered this a well marked case of tænia, and requested to be informed candidly if he was much in the habit of drinking. He answered in the affirmative, remarking that he never diluted rum, if he could procure it in its genuine state. The latter circumstance appeared to me to indicate the propriety of increasing my dose of the ol. terebinth.; I therefore, on the morning following, (26th October,) at six o'clock, measured three ounces by a graduated glass, which he drank off immediately. I visited him every hour, and at ten o'clock, while questioning him as to his sensations, he was seized with

severe pain in his belly, and a desire to stool; he had scarcely sat on the pot when he passed the worm, eight feet long. About the centre it is nearly half an inch broad, tapering off very small at both ends. This man never complained of any pain or inconvenience, but that of intoxication, which he thus described on the following morning, "I was more drunk yesterday than I was when I drank at one time a bottle of rum."

*Letter from Assistant-Surgeon Joseph Aller, Royal West India Rangers, to Staff-Surgeon Hartle.*

*Dominica, 26th November* 1817.

My Dear Sir,—To your valuable suggestions I am indebted for success in the following case of tænia, by the exhibition of a large dose of oleum terebinthinæ.

William Osmotherly, private soldier of the Royal West India Rangers, aged 23, robust habit, landed in perfect health with detachment of his regiment from Guadaloupe, in May 1816. Dysentery soon after became the prevailing disease among the troops. About the 1st of June he became affected with loss of appetite and general depression of spirits; occasional griping, and frequent purging stools, mostly mucus, sometimes mixed with blood. He was induced by remissions of disease to conceal his complaint until the 27th, when he was ordered to hospital, weak and much emaciated. The griping and purging were more continual; the tongue white; heat of skin natural; he said pieces of worm were frequently passing. An ounce and a half of the ol. terebinth. were given immediately; he became slightly intoxicated, but experienced no disagreeable sensation. An hour after he was purged very often, and voided several yards of tape-worm dead. The purging continued about two hours. At night calomel gr. vi. ext. opii gr. i. made into a pill was given; next day thirty grains of rhubarb. No more worm was passed; the griping ceased; the bowels became more regular; stools of a better appearance; but, to obviate any tendency to dysentery, calomel combined with opium was ordered, until the mouth was slightly affected. He improved daily, and when discharged, enjoyed health and spirits equal to his first arrival in this island.

I am, Dear Sir, with the greatest respect,
Your most obedient Servant,
Joseph Aller,
*Assistant-Surgeon, Royal West India Rangers.*

# Poisoning from Arsenic.

## 6. *Poisoning from Arsenic.*

We noticed an interesting case of this kind in a former number, but without entering into any of the particulars. The subject of it was a woman, 32 years of age, and whose husband had of late given strong proofs of his desire to be separated from her. Returning one day from work, she found her husband and children had already dined, a portion, consisting of potatoes and beans, being left in the oven for her, and to this she sat down with an appetite, but owing to its very unpleasant taste, compared to high seasoning with pepper; she could not eat much of it. Resuming her work, she was in half an hour attacked with a sense of burning heat in the throat, and violent pains in her belly, quickly succeeded by urgent thirst, vomiting, and diaorhœa. The symptoms increased, and on the second day afterwards, medical assistance was called in by one of the neighbours, but the medicines administered were rejected by vomiting, and on the night of the fifth day the patient expired, having on the day preceding her death been interrogated and given the most collected answers to the officers of justice. It was ascertained that the husband had bought arsenic a short time previously; and two of the children, who had tasted of their mother's dinner, were attacked with symptoms similar to her's, but recovered. No part of the infected food could be procured, from the husband having carefully thrown it away. On dissection of the body of the woman, the stomach and intestines were found highly inflamed, and the mucous membrane of these viscera in several places detached and vacelated.

The contents of the stomach, consisting of five and a half ounces of yellowish red fluid, in the sediment of which nothing in the form of powder could be detected, either by the touch or the eye, assisted by a microscope, were first subjected to experiment. Being mixed with 24 ounces of distilled water, the whole was subjected to ebullition for an hour, and then strained, when twelve and a half ounces of fluid were obtained, which was made the subject, of the following trials: The colour of a piece of litmus paper was not in the least altered by it. An ounce of it mixed with 20 drops of a solution of ammoniated copper, assumed a yellowish green colour, and deposited a slight precipitate of a similar hue, which, when dried and burnt, omitted a slight but very perceptible arsenical smell (like garlic). Another ounce of it, mixed with half an ounce of a solution of sulphurated hydrogen, became clouded, and soon after deposited a small yellow sediment, which, treated as the preceding, emitted first a sulphurous, and then an arsenical smell. A third ounce being put in a glass vessel, and made to boil, had as much boiling lime water added to it, when the mixture became milky, and the sediment also in this case gave a smell of garlic when burnt. (Experiments like the three preceding were made with a weak solution of arsenic, two grains to an ounce of boiling distilled water, and afforded similar results, with this difference, that the precipitates were in larger quantities.) A large teaspoonful of the fluid being poured on a red hot plate of copper, after the evaporation of the water, emitted a distinct smell of garlic, and there remained on the copper small white spots surrounded with a black ring, and which spots could only be effaced with difficulty.

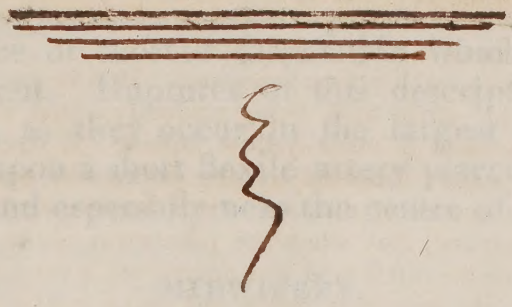
The contents of the small intestines weighing ninety-two drachms and consisting of a fluid similar to that found in the stomach, mixed with a larger quantity of mucus and a little yellowish excrement, had thirty-two ounces of distilled water mixed with them, were then exposed to ebullition for an hour and filtered. Owing

to the quantity of mucus it was only at the end of several days that six ounces of filtered liquid were obtained, and what remained on the filter having almost coagulated, no more could be extracted. That which was procured did not, in the slightest, redden litmus paper. A portion of it mixed with a solution of ammoniurated copper, assumed a dark grass green colour, and deposited a bright green precipitate, which, dried and burnt, emitted the peculiar smell of arsenic. Another portion mixed with a solution of sulphuretted hydrogen, afforded a much larger sediment, than in the same experiment, with the fluid obtained from the stomach, and which sediment did not differ in the slightest from the colour of one of operment standing beside it, and it also gave the smell of garlic when burnt. A third portion of the fluid, made to boil and mixed with boiling lime water, produced a similar, but much more copious deposit than that obtained in the same trial with the first mentioned fluid. A tea spoonful of the fluid poured on a red hot plate of copper, gave the same results as in the former instance.

" However convincing these proofs were of the presence of arsenic acid in the fluids submitted to experiment, and also of the large quantity of it in that, procured from the intestines, still in so important a matter we did not consider them sufficient, and we now proceeded to treat the æsophagus, stomach, and intestines, on the plan proposed by Valentine Rose, in order to detect any particles of arsenic that might be engrained in these parts, or enveloped in mucus, and to procure them in the solid form, or as metal. It may be previously remarked, that although it was now eight days since death, and four days since the parts in question had been removed from the body, and though they had not been kept in a cold room; still they did not emit the slightest putrid smell, they were as yet so firm and tough as to prevent their being easily cut with a common scalpel, a pair of strong scissars was required for this purpose. On the internal coat of the stomach and intestines something like a powder or crystals, could be perceived either by the touch or microscope. The weight of the whole was forty-four ounces, they were put into the vessel, previously used to boil their contents, along with three pounds of distilled water, and six drachms of caustic potass, and the whole boiled for an hour, when the decoction was separated from the solid parts, by means of a hair-sieve. To procure every thing that was soluble, the solid parts were again boiled in a pound of distilled water, and the decoction strained was added to that already obtained. On cooling the decoction, it assumed a dirty, ropy appearance, and several pieces of fat had formed on its surface, which were removed. It was put on a gentle fire and brought to boil, and nitric acid being gradually added to it, to saturate the potass, the fluid assumed a clear yellow colour. A considerable quantity of fatty and mucous matter dissolved by the potass was separated and removed by the filter, a few ounces of distilled water being poured over it to wash it. It must here be remarked, that when the potass was added, there was merely a soapy smell, but when the nitric acid was poured on, a very disagreeable arsenical smell was emitted. It was now again put on a gentle fire and neutralised with carbonate of potass, but so as to leave the acid slightly predominate, the fluid slightly reddening bitrum paper; for this purpose fourteen drachms of the salt were required. The decoction had now assumed a darker colour, and after some more mucus was separated by filteration, it weighed about fourteen ounces. It was again brought to boil, and mixed with twenty-eight ounces of briskly prepared boiling hot lime water in a glass cylinder. The mixture became instantaneously muddy, and a whiteish grey deposit subsided. The cylinder being allowed to remain untouched for a night, in the morning the transparent fluid was poured off, and the sediment being collected on a paper filter, was washed with distilled water and dried. The precipitate when dried, had an ash grey colour, and weighed forty grains; as much pure boracic acid, and ten grains of pure carbon being added to it, they were carefully triturated together, and the whole, weighing ninety grains, were put into a small thin glass retort, provided with a good lute, and exposed to an open charcoal fire till the retort became red hot. When cool,

the retort was carefully removed from the furnace, and the lute being removed, it was broken. In the bottom of it was a black loose charcoal mass, consisting of boracic acid and carbon, weighing sixty grains. In the neck of the retort, there was deposited a real regulus of arsenic in the form of a whitish grey, somewhat granular metalic sublimate. A piece of white paper firmly rubbed on this sublimate had a dark grey spot formed on it, which, smoothed with a polishing iron, assumed a distinctly metallic polish; and on being burnt, gave a strong arsenical smell. Part of the sublimate boiled in a sufficient quantity of distilled water and filtered, (whereby some undisolved greyish particles remained on the filter) assumed, on the addition of a solution of ammoniuriatted copper, a yellowish green colour, and immediately deposited a beautiful yellowish green precipitate, (Sheeles green). On breaking the retort, the small pieces of glass on which was some of the sublimate were collected together, and a piece of smooth paper wrapped in it and burnt at the candle, when a strong or arsenical smell was produced, as to oblige us to open the doors and windows.

The quantity of metallic arsenic contained in the sublimate may be thus reckoned. During the sublimation an empyreumatic fluid collected in the receiver, which did not redden bitrum paper, nor did not alter the solution of ammuriated copper, and consequently appeared to consist merely of water, which had been united with the powder, at a low temperature. The weight of this fluid was twenty-five grains, and this added to sixty grains of residium in the retort, makes eighty-five grains. Further, allowing that two grains of the in other respects fire-proof boracic acid, might be mechanically covered up with the moisture, we have remaining at least three grains of metallic arsenic in the sublimate. Seeing that Proust and Rose's manifold and repeated experiments coincide in establishing that in 100 parts of metallic arsenic there are 333 of arsenic acid, (white arsenic,) it follows that three grains of metallic arsenic are four of white arsenic; and it may be with certainty affirmed that these four grains of arsenic acid, actually were present in the viscera examined by us, and were separated by us in the metallic form. Of what remained of these three grains of metallic arsenic after our experiments, are deposited along with the broken pieces of the retort, in the sealed box, attached to this process verbal.



Lond. med. Repository, v. 14, p. 160, 1820

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# Willudovius. M. D.

## Cases of poisoning by Sulphuric acid.

VI. *Cases of Poisoning by Sulphuric Acid*.—First Case.* In May, 1819, Dr. Willudovius was called on to inspect juridically the body of a woman who had died under suspicious circumstances. She had long been in a dejected state; and on the day of her death, being missed from the house, was after long search found in an out-building. She was in a posture indicating spasm; concealed her sufferings; but at length confessed that she had pain in the abdomen. With some difficulty she was put to bed. Her limbs were cold, and countenance death pale. The case was treated by the Surgeon as colic, till the woman acknowledged that she had swallowed a large quantity of sulphuric acid. Milk was now with difficulty poured into the stomach, the mouth smeared with almond-oil, and tincture of valerian and castor administered; but in vain. The woman died two hours after she had been missed from the house. She was of the middle size, and aged about thirty.—*Dissection*, on the following day.

* Journal der Practischen Heilkunde, September, 1819.

*Exterior.* Body without fœtor. Two scald-like streaks extending from the angles of the mouth towards the chin.—*Cranium.* Integuments and membranes sound. Substance of brain firmer than natural, and cutting like coagulated albumen. Uery little fluid in the ventricles. Plexus choroides, and other blood-vessels, little distended. Internal surface of the cheeks, the gums, lips, and tongue, white; the epidermis shrivelled, and in some places abraded.—*Thorax.* Lungs sound, excepting adhesion of the right. Brown colour of their external surface extending two lines into their substance, and then gradually changing into a bright cinnaber-red, which continued throughout. The brown exterior cutting like leather: interior naturally, and little loaded with blood. Pericardium healthy. Both ventricles of the heart quite empty; parietes of left unusually thin. The blood of the large thoracic vessels blackish and partly coagulated. The œsophagus, in its whole circumference and length, internally whitish; and the shrivelled epidermis but loosely connected with the subjacent muscles. Diaphragm brownish, very soft, and in some places much corroded.—*Abdomen.* Omentum nearly destroyed. The stomach of a dirty brown colour, tore on the slightest touch: contained fluid of a sourish and somewhat cadaverous smell, and brown colour, and mixed with white caseous matter, and blackish coagulated blood.

This fluid was passed through filtering paper, and then imparted a red colour to litmus paper. A solution of muriate of barytes dropped into another portion, produced a white precipitate, which was wholly soluble in pure nitric acid; and hence sulphate of barytes. To a third portion was added a solution of nitrate of lead: from this immediately resulted a white precipitate, again soluble in the supernatant liquid. Consequently, as demonstrating sulphate of lead, it confirmed the evidence of the first experiment; and clearly proved the presence of sulphuric acid in the contents of the stomach.

The coats of the organ itself were scarcely recognizable; in some places very thick, with coagulated blood extravasated between them; in others, dark brown much corroded, exhibiting, as it were, gangrenous spots; and their whole substance extremely soft and lacerable. The internal membrane of the small intestines shrivelled, and the valvulæ conniventes projecting one on the other, so as to close the whole canal. The mucous coat of the large intestine also white and wrinkled up, but otherwise unaltered. Pancreas sound. Liver externally discoloured; every where very firm and compact: its external surface cutting like leather to the

depth of some lines, and of a brown colour; internal structure bright red. Gall bladder, its membranes considerably thickened, containing a thin and almost colourless fluid*, and bright yellow bile strongly adherent to the blood-vessels, which projected on its internal surface. Spleen firmer than natural, and resembling, on incision, the liver. The kidneys, except that they presented a leather-like surface, unaltered. Urinary bladder empty. The unimpregnated uterus very firm, and cut with difficulty.

The comments of the author on the preceding facts, more diffuse than interesting, our limits will not allow us to retrace.

*Second Case.*— In August 1816, a calico printer, aged fifty-six, drank, by mistake for brandy, a considerable quantity of concentrated sulphuric acid. Every effort to relieve him was unavailing. He sunk exhausted, two months afterwards. The following were the results of the dissection. October 4th.— *Exterior.* Body so emaciated, that the cellular membrane, in the intervals of the muscles, appeared quite empty, and the muscles themselves projected distinctly beneath the skin. The bones, with all their prominences, perfectly visible. The teeth firm; gums of a pale blue colour; tongue yellowish-white; nostrils dry, and widely dilated. The belly so sunk in, that its parietes seemed completely drawn together, and the navel to rest upon the spine. Anus closed. Livid specks observed on the inguinal region only. No trace of external injury.— *Abdomen.* Adipose substance completely absorbed. Omentum merely a delicate transparent membrane, interwoven with vessels. Liver uncommonly small, of a dark brown-red colour. Gall-bladder distended with bile. Spleen of a bright blue or lead colour. Transverse colon low down; and greatest portion of the small intestines deeper than usual in the pelvis. All the parts in the vicinity of the gall-bladder, the peritonæum, and muscles, of a dark-brown colour. No traces of inflammation. The stomach was so contracted as to measure but five inches long and three deep. Its membranes everywhere, but especially in the vicinity of the cardia and pylorus, considerably thickened; the orifice of the latter scarcely four lines wide, but its circumference thickened, and of cartilaginous hardness. On the villous coat of the organ, and near the pylorus, several small, red, firm, granulated spots, with elevated margins, which had the aspect of incipient carcinoma, and evidently

* The author supposes the bile to have been precipitated from the fluid upon the parietes of the gall-bladder.

indicated the operation of a corrosive fluid. In the pylorus itself, cardia, and great curvature of the stomach, similar spots; but those in the two latter situations smaller, and less red. One in the fundus of the organ, of a greenish-blue colour, and two inches in circumference, exhibiting several small vessels much gorged with blood. A bluish patch on the external surface corresponding to it. All the consequences of chronic inflammation. The duodenum in the same state as the stomach, but more strongly marked the nearer it approached that organ. The villous coat of the small intestines exhibiting very firm wrinkles, disposed in rows. Membranes of jejunum and inferior portion of ileum extenuated; their blood-vessels, as it were, injected, and villous coat much wrinkled. Large intestine displaying these changes in the slightest degree, and containing some bright-yellow excrement. Kidneys firm and small. Bladder empty and contracted. Gall-bladder affording a considerable quantity of dark-green thick bile. — *Thorax.* Lungs collapsed, marbled with red and blue. Pericardium very firm, and containing a quantity of fluid. Heart large; little blood in the ventricles, especially the left. Auricles empty. Œsophagus thickened, but without inflammation or corrosion. —*Cranium.* Clear lymph beneath the dura mater, diffused over the whole brain. The same, coagulated, beneath the tunica arachnoidea, and all the cerebral vessels much gorged. Small quantity of fluid in the lateral ventricles. Basis of brain natural.

### CHEMISTRY.

VII. *On Sebadilline, a new (vegetable) Alkali**.— Dr. Meissner has obtained from cevadilla, or Indian caustic barley, (*veratrum sabbadilla,*) a new alkali, to which he has given the name of sebadillium (*sebadilline*). It is contained in the epidermis of the long blackish-coloured seed of the plant, and exists in the proportion of about half per cent, combined with an acid which bears a strong analogy to the malic.

This alkali is prepared by making, with moderately strong alcohol, a tincture of the seeds. On evaporation there remains a resinous matter, which is to be rubbed down with water. To this brown liquid, when filtered, sub-carbonate of potash is added, till there is no longer any precipitation. The precipitated matter is then washed in water till the fluid passes colourless, and is afterwards dried.

This substance is of a (somewhat dead) white colour,

* Journal de Pharmacie, Mai 1820.

inodorous, and has a very pungent taste. Introduced into the nostrils, it acts as a violent sternutory. It restores the blue colour of reddened litmus paper. It is a little soluble in water, but perfectly so in alcohol.

Thus there are now at least seven new alkalis: morphine, strychnine, delphine, atropine, daphnine, daturine, and sebadilline. It is probable that the list will still increase till Chemists have recognised, in these apparently different substances, a common base.

### BOTANY.

VIII. *New Febrifuge Plant**.*—In the Madrid Gazette, under the date of June 25, 1819, is announced a new febrifuge plant, known to the Indians of Quito, by the name of *chinininka* (pronounced as *chinininga*). It is a shrub of a new genus. Dr. Joseph Pavon has named it *unanuea febrifuga*, and presented it to the Academy of Sciences of Madrid. Some experiments have already been made upon it in intermittent fever; and several well-known Physicians have obtained great success from giving a scruple of the root, in powder, every three hours. The dose is afterwards raised to half a dram; and by this mean, the febrile paroxysms, which had resisted even the cinchona, have been prevented.

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W. T. Brande.

*Table exhibiting the Average Quantity of Spirit in different kinds of Wine.* By W. T. Brande, Esq. Sec. R.S. &c.

Since the publication of the Researches upon the State of Spirit in Fermented Liquors, contained in the Philosophical Transactions for the years 1811 and 1813, I have, through the kindness of different friends, had ample opportunities of extending my experiments; and to my former list of wines, already copious, a few additions have been made, of which I have from time to time given notice, and which are put down in the following table. It does not seem necessary, in this place, to allude to the experimental details, nor to notice the precautions required in conducting the distillations, as they are fully given in the papers above noticed. I have therefore

omitted the column, which will be found in the Philosophical Transactions (1811, p. 345), shewing the specific gravity of the distilled liquor upon which the calculations are founded.

| | *Proportion of Spirit per Cent. by Measure.* |
|---|---|
| 1. Lissa | 26·47 |
| Ditto | 24·35 |
| Average | 25·41 |
| 2. Raisin Wine | 26·40 |
| Ditto | 25·77 |
| Ditto | 23·20 |
| Average | 25·12 |
| 3. Marsala | 26·3 |
| Ditto | 25·5 |
| Average | 25·9 |
| 4. Madeira | 24·42 |
| Ditto | 23·93 |
| Ditto (Sercial) | 21·40 |
| Ditto | 19·24 |
| Average | 22·27 |
| 5. Currant Wine | 20·55 |
| 6. Sherry | 19·81 |
| Ditto | 19·83 |
| Ditto | 18·79 |
| Ditto | 18·25 |
| Average | 19·17 |
| 7. Teneriffe | 19·79 |
| 8. Colares | 19·75 |
| 9. Lachryma Christi | 19·70 |
| 10. Constantia, white | 19·75 |
| 11. Ditto, red | 18·92 |
| 12. Lisbon | 18·94 |
| 13. Malaga, (1666.) | 18·94 |
| 14. Bucellas | 18·49 |
| 15. Red Madeira | 22·30 |
| Ditto | 18·40 |
| Average | 20·35 |
| 16. Cape Muschat | 18·25 |
| 17. Cape Madeira | 22·94 |
| Ditto | 20.50 |
| Ditto | 18·11 |
| Average | 20·51 |
| 18. Grape Wine | 18·11 |
| 19. Calcavella | 19·20 |
| Ditto | 18·10 |
| Average | 18·65 |
| 20. Vidonia | 19·25 |
| 21. Alba Flora | 17·26 |
| 22. Malaga | 17·26 |
| 23. White Hermitage | 17·43 |
| 24. Rousillon | 19·00 |
| Ditto | 17·26 |
| Average | 18·13 |
| 25. Claret | 17·11 |
| Ditto | 16·32 |
| Ditto | 14·08 |
| Ditto | 12·91 |
| Average | 15·10 |
| 26. Malmsey Madeira | 16·40 |
| 27. Lunel | 15·52 |
| 28. Sheraaz | 15·52 |
| 29. Syracuse | 15.28 |
| 30. Sauterne | 14·22 |
| 31. Burgundy | 16·60 |
| Ditto | 15·22 |
| Ditto | 14·53 |
| Ditto | 11·95 |
| Average | 14·57 |
| 32. Hock | 14·37 |
| Ditto | 13·00 |
| Ditto (old in cask) | 8·88 |
| Average | 12·08 |
| 33. Nice | 14·63 |
| 34. Barsac | 13·86 |
| 35. Tent | 13·30 |
| 36. Champagne (still) | 13·80 |
| Ditto (sparkling) | 12·80 |
| Ditto (red) | 12·56 |
| Ditto (ditto) | 11·30 |
| Average | 12·61 |
| 37. Red Hermitage | 12·32 |
| 38. Vin de Grave | 13·94 |
| Ditto | 12·80 |
| Average | 13·37 |
| 39. Frontignac | 12·79 |
| 40. Cote Rotic | 12·32 |
| 41. Gooseberry Wine | 11·84 |
| 42. Orange Wine—Average of six samples made by a London manufacturer | 11·26 |
| 43. Tokay | 9·88 |
| 44. Elder Wine | 9·87 |
| 45. Cider, highest average | 9·87 |
| Ditto, lowest ditto | 5·21 |

| | Proportion of Spirit per Cent. by Measure. | | Proportion of Spirit per Cent. by Measure. |
|---|---|---|---|
| 46. Perry, average of four samples | 7·26 | 50. Lon. Porter (average) | 4·20 |
| 47. Mead | 7·32 | 51. Ditto Small Beer (do.) | 1·28 |
| 48. Ale (Burton) | 8·88 | 52. Brandy | 53·39 |
| Ditto (Edinburgh) | 6·20 | 53. Rum | 53·68 |
| Ditto (Dorchester) | 5·56 | 54. Gin | 51.60 |
| 49. Brown Stout | 6·80 | 55. Scotch Whiskey | 54·32 |
| | | 56. Irish ditto | 53·90 |

*Journal of Science and the Arts*, vol. iv. p. 289.

# *PART IV.*

# FOREIGN MEDICAL SCIENCE AND LITERATURE.

## CHEMISTRY.

III.—*M. Pelletier* has analysed the nature of the venom of the common toad, and given the following account of it*.

"The fluid, which the common toad (Rana *bufa*) contained in the vesicles which cover the skin, is of a yellow colour and an oily consistence. Exposed to the air it soon becomes concrete, and, if it be received upon a plate of glass, it can be raised in the form of solid and transparent scales, after a few seconds. The venom of the toad, whether in the solid or the liquid form, is extremely bitter, acrid, and even caustic; it reddens strongly the tincture of litmus, and forms an emulsion with water. Alcohol when cold scarcely acts upon it; but, when hot, it attacks and dissolves a part of it, and acquires a fawn colour. The portion undissolved in the alcohol is perfectly white, without odour or taste, and resembles gelatinous membranes.

"The alcoholic solution scarcely reddens litmus, and even loses entirely that property by evaporation. As the alcohol is disengaged, a fat, oily matter separates, which concretes on cooling, is insoluble in water, a little soluble in ether, but much more so in alcohol. Its taste is very bitter, but it is neither acrid nor caustic. Far from reddening litmus, it restores, when aided by heat, the blue colour when that has been reddened by an acid. These phenomena seem to indicate—1st, that the acid

* M. Pelletier read his paper on this subject to the *Société Médicale d'Emulation.*

of the venom is volatile;—2, that it is partly saturated by a base to which it loosely adheres, and which, in uniting itself to another acid, employed to redden the litmus, allows the blue colour of that substance to be re-established.

"I have not been able to isolate this acid, which is not astonishing when we consider its volatility and the small quantity of matter on which I had to work.

"As to the gelatinous matter insoluble in alcohol, it does not dissolve in cold water, but does so in hot water, communicating to it a gelatinous property. On cooling, the water takes an opaline aspect and a certain consistence. This matter might be regarded as gelatine; nevertheless it is not precipitated either by chlorine or by infusion of gall-nuts. From comparative experiments made with isinglass, no doubt remained of the distinct character of the two substances.

"From these facts it may be concluded, that the venom of the toad contains—1, an acid, partly united to a base, and constituting one twentieth part of the whole:—2, very bitter fat matter:—3, an animal matter, having some analogy with gelatine, but apparently differing from it in some respects*."

VIII. *On the Poison of the Toad.*—(*Rana Bufo.*)

We noticed in our last Number (April, p. 379) a communication lately made to the Royal Society by Dr. J. Davy, on the poison of the common toad.

In that notice we gave Dr. Davy credit for recalling the attention of naturalists to this subject, and furnishing us with grounds for believing that the notions long entertained by the vulgar, with respect to the poisonous qualities of the toad, were really well founded, though contrary to the opinions most generally received among the learned in the present day.*

Since the publication of that article, however, our attention has been directed to one or two passages in the work of Messrs. Paris and Fonblanque on Medical Jurisprudence, published in 1823, which contain, it must be confessed, much of that information, &c. for which we and others had inadvertently given credit to Dr. Davy. We deem it, therefore, but justice to all parties to lay these passages also before our readers, leaving it at the same time to every one to form his own opinion on the subject.

Our authors, after detailing at some length the opinions formerly entertained upon this subject, proceed thus:

'Modern naturalists recognise no poisonous *species of toad;* even the most formidable of *the species* to appearance, that of Surinam, is said to be perfectly harmless.† * * * * * * * * * * * * * * * * *

* 'Ce sont des animaux d'une forme hideuse, degoutante, que l'on accuse mal à propos d'être venimeux par leur salive, leur morsure, leur urine, et même par l'humeur qu'ils transpirent.'—(Cuvier, *sur les Crapauds, Regne Animal,* vol. ii. p. 94.)

† In this short sentence the term species is employed, first in a *specific,* and then again in a *generic* sense—an irregularity we should not have expected to find in a scientific publication of the present day.

'It has, however, been shewn by late experiments, that the *toad* has, under particular circumstances, the power of ejecting from the surface of the body *an acrid secretion, which excoriates the hands* of those that come in contact with it;* and this fact may perhaps have assisted in supporting the general belief respecting the poisonous nature of this reptile.

'Pelletier has ascertained that this corrosive matter, contained in the vesicles which cover the skin of the common toad; has a yellow colour, and an oily consistence; and to consist of, 1st, an acid, partly united to a base, and constituting $\frac{1}{20}$th part of the whole; 2d, a very bitter, fatty matter; 3d, an animal matter bearing some analogy to gelatine.'—(*Medical Jurisprudence*, vol. ii. p. 139.)

*Russian Remedy for Hydrophobia.*—"Take a good-sized root of Alisma *Plantago*, and two or three small ones; pound or reduce them all into a very fine powder, which spread on a piece of buttered bread and give it to the patient. Two doses, or three at most, are sufficient to eradicate the virulency of the poison, let it be ever so violent, even if the patient be already in the worst state, so as to be afraid of water. The efficacy of this root cures also animals bitten by mad dogs, and even mad dogs themselves. During the last twenty-five years, this remedy has not once failed; but has uniformly been a sure means of successfully restoring every person to their former health without any bad consequences afterwards; even those, who, from the violence of the poison, rushed upon people and bit them; which facts are particularly ascertained in the government of Toola.

"The plant may be gathered during the whole of the summer, but it operates more efficaciously if gathered at the latter end of August; the roots of it, being taken up and washed clean from mud or other earthy matter, must be dried."—(*Translated from the Russian, and communicated in a letter to Sir Walter Farquhar.*)

## 8. *Cubebs.*

The following are the results of an analization of Cubebs, made by M. Vauquelin, at the request of the Société de Medicine de la Faculté de Paris:—

1. A volatile oil, nearly concrete.
2. A resin similar to that of balsam of copaiba.
3. A small quantity of another coloured resin.
4. A gummy coloured matter.
5. An extractive principle, analogous to that which is found in the leguminous plants.
6. Certain saline substances.

"I hope," says the celebrated Chemist to whom we owe this memoir, "that this analysis, on which I have bestowed much care, will assist in affording some directions to the Physician who thinks it right to make use of the Cubeb."—(Bulletin de la Faculté de Médicine, 1820, No. 3.)

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[Having already considerably exceeded our usual limits, we must delay our List of New Foreign Works till the publication of our next Number.]